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Editor - Captain L. B. Marshall, MC, USN

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TABLE OF CONTENTS

Circular Letters

Safety Measures Adopted for Medical Gases

The chance of administering an anesthetic gas in error has, for many years, constituted a continuing problem. During this past year progress has been made toward elimination of this hazard. The system which has been adopted, after thorough consideration and investigation of its technical aspects, involves the use of matching pins and holes for flush valve cylinders and anesthetic machines. It has been agreed that the system of indexing anesthetic gases will depend for its operation upon at least two pins of 5/32" diameter affixed to each yoke on a gas machine with matching holes in each valve body in combinations of six positions. The positions of the pins and holes have been designated for each gas and for combinations of gases. Positions of the holes are to be numbered 1 to 6 from the left for ease of reference. A line drawn through the center of the valve outlet at an angle of 30° measured from the center line of the valve to the left will pass through position number 1 with the other positions at intervals of 12° being numbered 2 to 6. Positions have been assigned as follows: ethylene 1, 3; nitrous oxide 3, 5; cyclopropane 3, 6; oxygen 2, 5; helium-oxygen 2, 4; carbon dioxide-oxygen 2,6; carbon dioxide 1,6; unassigned 1,4; 1:5. Resuscitators, at least in the introductory period, will require only one pin in the number 2 position. This arrangement will permit loading with life saving gases including oxygen, helium and oxygen or carbon dioxide and oxygen. Life saving combinations have been designated. Mixtures of helium and oxygen containing helium 8 % or less will be indexed by use of holes in positions 2,4. Likewise, mixtures of carbon dioxide and oxygen containing carbon dioxide 7 % or less will be indexed by holes in positions 2,6. Mixtures containing helium or carbon dioxide in excess of the percentages specified as life saving will be indexed as helium in positions 4,6 or as carbon dioxide in positions 1,6. Cylinders containing such mixtures will not fit indexed resuscitators.

The tentative timetable for application of these protective measures is as follows: 1. It is not expected that cylinders with flush valves and identifying holes bored will be issued to consumers before August 1, 1952. 2. It is hoped that all cylinders with flush valves can be indexed by January 1, 1953. 3. Users of anesthetic gases should be able to place pins in their equipment by May 1, 1953. 4. New gas machines and resuscitators purchased after May 1, 1953 should be equipped with identifying pins by the manufacturer. It is contemplated that existing machines can, in the majority of instances, be altered to provide indexing on hospital premises. It will be the responsibility of suppliers to index cylinders and the responsibility of the user to index gas machines and resuscitators.

Adoption of this system of indexing by the Compressed Gas Association implies that it will be recommended to the American Standards for inclusion in American Standard B 57.1, "Compressed Gas Cylinder Valve Outlet and Inlet Connections." The system was submitted, in London in the latter part of 1951, for consideration as an International Standard by Technical Committee 58 of the International Standards Organization. It is anticipated that international agreement and adoption will be achieved.

At the same conference in London international standardization of methods for visual recognition of cylinders containing medicinal gases was discussed. It was voted to recommend that containers of compressed gas be legibly marked as follows:

(a) With the name of the gas it contains in the language of the country in which it is filled.

(b) With the chemical formula or other agreed abbreviation.

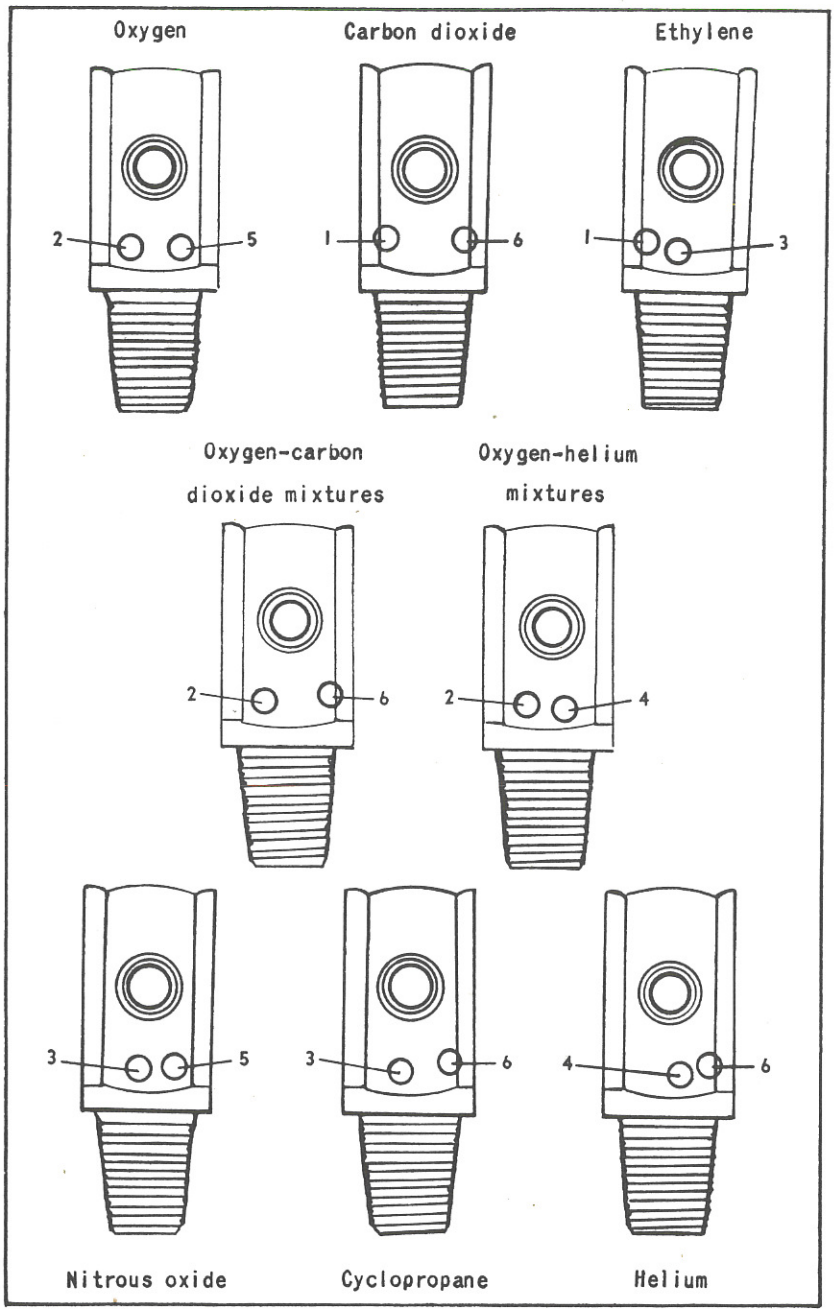
It was also agreed that markings designated in (a) and (b) shall be placed at the valve end of the container and preferably off the cylindrical part of the body. International standarization of a color code for recognition of medicinal gases was discussed. Through a series of compromises among nations the following tentative code was considered agreeable, the identifying color to be applied to the shoulder of cylinders.

Table 1- Proposed Code, Color Identification of Medical Gas Cylinders

NAME OF GAS	PROPOSED INTERNATIONAL STANDARD	PRESENT USA STANDARD
Oxygen	White	Green
Helium	Brown	Brown
Nitrous Oxide	Blue	Blue
Cyclopropane	Orange	Orange
Ethylene	Violet	Red
Carbon Dioxide	Dark Grey	Grey
Nitrogen	Black	——
O_2 - Helium	White-Brown	Green-Brown
O_2 - Carbon Dioxide	White-Dark Grey	Green-Gray

Once indexing by holes and matching pins is established, identification by color will be even less important than it is now. It is, however, the opinion of the American representative that the American Society of Anesthesiologists should go on record as favoring a color code that has international recognition. It is indeed fortunate that present proposals require only two basic changes and one addition in the present color code established in Simplified Practice Recommendation R-176-41 of the National Bureau of Standards, U. S. Department of Commerce.

The Compressed Gas Association is willing to adopt the new standard and assume the responsibility for repainting cylinders.



Drawings illustrating the 8 assigned combinations of holes in cylinder valve bodies appear above. The numbers indicate the standard designs for each hole.

Operating Room Safety. A new edition of Pamphlet No. 56, "Recommended Safe Practice for Hospital Operating Rooms" was issued by the National Fire Protection Association and may be obtained for a fee of 25 cents by writing the National Fire Prevention Association at 60 Batterymarch Street, Boston 10, Massachusetts. This document was adopted by the American College of Surgeons, the American Hospital Association, National Board of Fire Underwriters, National Fire Protection Association and the Veterans Administration. A new edition containing the latest concepts will be issued in 1952. Pamphlet No. 565, "A Standard for Nonflammable Gas Systems" was adopted by the National Fire Protection Association and the National Board of Fire Underwriters and published in 1951. This document supersedes a standard of recommended good practice requirements originally issued in 1934 and reprinted in 1946. This document specifies that mechanical means shall be provided to assure the connection of cylinders containing the proper gas to a manifold. Cylinders for oxygen, larger in capacity than those having flush valves, shall have valves of .903 inches outside diameter, whereas cylinders of similar size containing nitrous oxide shall have valves of .825 inches outside diameter. The code further specifies that where helium or carbon dioxide are to be piped, care should be taken to assure non-interchangeability with other medical gases. Thus noninterchangeability is provided for oxygen and nitrous oxide but the code is weak because of failure to stipulate mechanical means to assure non-interchangeability in reference to helium and carbon dioxide. It is fortunate that neither of these gases are frequently supplied through pipelines. Copies of Pamphlet No. 565 are obtainable from the Boston Office of the N. F. P. A., 25 cents each.

Problems still exist, deserving solution on a national basis. Explosion-proof outlets in operating rooms should be standarized, and specifications of the standard should be incorporated in the National Electrical Code. Standard safeguards in relation to methods of supplying oxygen to hospitals should be coded and incorporated in Pamphlet No. 56. Quick couplers should be standarized as to design characteristics, providing non-interchangeability for nonflammable gases and suction systems used in hospitals. ("News Letter," Am. Soc. Anesthesiologists, March 1952, R. M. Tovell)

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A Saliva Test for Prenatal Sex Determination

During the course of investigating some of the many ramifications of the Richardson Pregnancy Test, two rather interesting observations were made. (See Medical News Letter, Vol. 18, No. 2, 27 July 1951.) The Richardson test depends upon the presence of free estrone, in contrast to bound or modified estrone or similar 17-ketosteroids in the female urine. This level of free estrone substances rises sharply soon after conception, the test being positive in as little as 2 weeks after conception, sometimes even before the first missed menstrual period. The authors were naturally interested in determining whether the free estrone level rose in body fluids other than blood and urine, which were mentioned in

Richardson's original article. They investigated such fluids as saliva, tears and perspiration. The studies upon saliva yielded the results that are the subject of this report.

It was noted early in the study that in only some of the women who were in their 6th or 7th month of pregnancy did the Richardson test prove positive when the saliva was tested. In each of these cases, however, the test was positive on the urine. The apparent answer to the problem was forthcoming only after the delivery of the child. In 218 of 221 cases, the positive tests were associated with a male child, and 148 of 155 cases negative tests were associated with a female child.

The precise nature of the substance responsible for the positive test is not known. It is believed that some androgenic substance is being identified, since, whereas a nongravid female normally yields a negative test, after the injection of testosterone or androsterone a strongly positive reaction results. The male saliva, spermatic fluid and blood serum are all strong positive reactors.

The selective excretion of certain blood constituents through the salivary gland is well known. These findings illustrate a rather delicate selectivity of female salivary glands in their capacity to screen out certain female-associated hormones, but to allow certain male-associated ones to pass into the salivary fluid. The findings are preliminarily reported to allow early verification by others. (Science, 7 March 1952, G. W. Rapp and G. C. Richardson)

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The Surgical Treatment of Presacral Tumors: A Combined Problem

The surgical management of presacral and sacral tumors has been in general unsatisfactory. This has been particularly true of the sacral chordomas.

The ideal surgical management of these lesions would be: (1) eradicate the lesion, (2) have no mortality and (3) have no neurologic deficits. These criteria cannot always be realized but can be very nearly approached in most cases and can be achieved in a few.

If the 4th and 5th sacral nerves are sacrificed bilaterally, perineal anesthesia does not exist and vesical and rectal evacuation can be normal. If one sacrifices in addition to these nerves the 3d nerve unilaterally, normal or near normal function will exist. Unilateral perineal sensory loss is observed. If the pudendal nerve is sacrificed unilaterally, essentially the same situation exists. If the 3d, 4th and 5th sacral nerves or both pudenal nerves are sacrificed bilaterally there are vesical and rectal dysfunction and bilateral perineal sensory loss. Ideally, therefore, one would strive to preserve the upper 3 sacral nerves and the pudendal nerves. Yet, if a tumor cannot be eradicated without resecting these nerves, one is justified in doing this to amputate the lesion.

In the presacral area there is an overlapping of the special fields. The neurologic surgeon, general surgeon and orthopedic surgeon working together have produced a better management of these various tumors than would have been possible if they were handled by any one of these specialists.

Preoperative Management. When the diagnosis of a sacral or presacral tumor is established by rectal examination, neurologic evaluation and roentgenographic studies, there are certain steps to be carried out preoperatively to reduce the incidence of wound infection and to prepare the lower part of the colon and the rectum for possible resection. The patient is hospitalized and preparation of the colon is begun. This usually requires 3 days. The patient is placed on a diet low in residue on admission, and a saline laxative such as phosphosoda is administered twice daily for two days (dose = 2 to 4 fluidrams). Irrigations consisting of 1 to 2 quarts of warm saline solution are given twice daily until the returns are clear. Paregoric is administered in a dose of 2 fluidrams 3 times the day before operation. The morning of operation the rectum is aspirated by means of rectal tube.

Succinylsulfathiozole (sulfasuxidine), aureomycin and terramycin have all been used in 1 or more of the patients but all have at times produced troublesome diarrhea and are best avoided in favor of penicillin and dihydrostreptomycin administered the day before operation and continued for 5 days postoperatively.

The low residue diet is again administered with oral fluids as soon as flatus is passing and continued for 5 days after operation before a general diet is resumed.

Sometimes it is necessary to ascertain whether the tumor is encroaching on the cauda equina. Therefore while the preparation of the colon is being done special neurologic tests, i.e., examination of spinal fluid and myelography, can be conducted.

Surgical Technics. Each of the three specialists play an important role during the surgical procedure. In general, the abdominal surgeon mobilizes and protects the rectum and pelvic organs. The orthopedic surgeon and the neurologic surgeon resect the tumor from the ligaments and surrounding muscles. The orthopedic surgeon osteotomizes the sacrum and ilium. The neurologic surgeon attempts to identify and preserve the sacral roots, pudenal and sciatic nerves. If there is intraspinal and subarachnoid extension he handles these problems.

The patient is placed on the operating table face down in the Kraske position. If there is sacral erosion a needle biopsy is obtained. This is done to establish the diagnosis. With the fresh-frozen-section technic the solid tumors can be immediately diagnosed in a high percentage of cases. If the lesion is a meningocele or presacral abscess, this is readily established. If the tumor is malignant there is a minimum of spreading of the tumor cells.

An incision is made longitudinally along the sacrum extending caudally to the coccyx. The coccygeal-anal ligament is divided, the coccyx is removed and the presacral mass is separated from the rectum. The gluteus muscles, sacrotuberous and sacrospinous ligaments, and piriformis and coccygeus muscles are detached. The lower 2 sacral nerves are divided bilaterally, and the pudendal nerves are identified and preserved. In most cases the lower 3 sacral segments can be resected and the pudendal nerves, including their 2 roots, the 3d and 2d sacral, can be spared. This is done by splitting the 3d sacral foramina anteriorly and posteriorly, preserving the nerves as they ascend in the sacral canal. The

sacrum and tumor are then withdrawn after cutting across the sacral arch and sacral body between the 2nd and 3d sacral segments and dividing the filum terminale. If the tumor extends into the upper sacral segments or lumbar canal or into the sacro-iliac joints and ilium, of course neurologic deficits may exist. Occasionally a hole is made in the rectum, but repair is not difficult. If there is a low caudal sac a spinal fluid leak might result but this is readily stopped by a suture. Because of the tremendous dead space resulting from removal of these tumors and portions of the sacrum a Penrose drain is left in the space. The gluteal muscles are resutured as firmly as possible and the subcutaneous tissues and skin are closed in an accustomed manner. (Proc. Staff Meet., Mayo Clin., 13 Feb. 1952, C. S. MacCarty, J. M. Waugh, C. W. Mayo & M. B. Coventry)

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Indications and Contraindications for the Plaster of Paris Walking Boot

In the treatment of fractures, as in every other field of surgery, there has been in recent years an increasing interest in early ambulation. One of the most popular implementations of this principle is the plaster of paris weight-bearing or "walking" boot for injuries to bones and ligaments below the knee. When indicated and properly applied it is one of the most useful splints in the surgeon's armamentarium, often restoring the patient to functional self-sufficiency within a few days of injury. But it has definite limitations beyond which it can do more harm than good.

Watson-Jones states that "a short below the knee plaster is not safe at any time in the treatment of fractures of both bones of the leg". Stimson advises that a walking boot should never be used in the treatment of fractures of both malleoli.

Evidence in support of this point of view was obtained by observing, by means of photographs and x-rays, the consequences of weight-bearing in a healthy young man 12 weeks after open reduction and internal fixation of a fracture of the lower tibia and fibula. It was apparent that weight is borne primarily on the sole of the foot and the malleoli in a plaster walking boot and only very little on the upper end of the tibia and fibula.

Another basic consideration which is often disregarded in using the plaster booth is that of immobilization of joints proximal and distal to a fracture. The boot fixes the ankle joint firmly and the projecting foot acts as a lever which serves to twist the ankle joint, tibia and fibula at every step. Such torsion is communicated to the fracture site in fractures of the shafts of the tibia and fibula.

Notwithstanding the experimental and clinical evidence pointing to the dangers inherent in the plaster walking boot, all surgeons will recall instances in which the boot was used contrary to these principles and without trouble. In other words, at times it is possible to "get away" with a plaster walking boot when its use should be contraindicated on theoretic grounds. However, it must be accepted that if a method of treatment of a fracture carries a risk of deformity,

that risk must contraindicate the method unless outweighed by other factors.

It is possible to formulate certain fairly definite indications and contraindications for the plaster of paris walking or weight-bearing boot. The indications (Fig. 19) are: (1) fractures of the fibula above the level of the distal tibiofibular ligaments; (2) fractures of the malleoli below the level of the superior surface of the astragalus and (3) most fractures of the bones of the foot distal to the talus and os calcis. The contraindications (Fig. 20) are: (1) fractures of the both bones of the leg at any stage of healing; (2) fractures of the malleoli which if displaced might result in widening of the joint mortise; (3) fractures of the os calcis or talus and (4) fractures of the distal weight-bearing articular surface of the tibia.

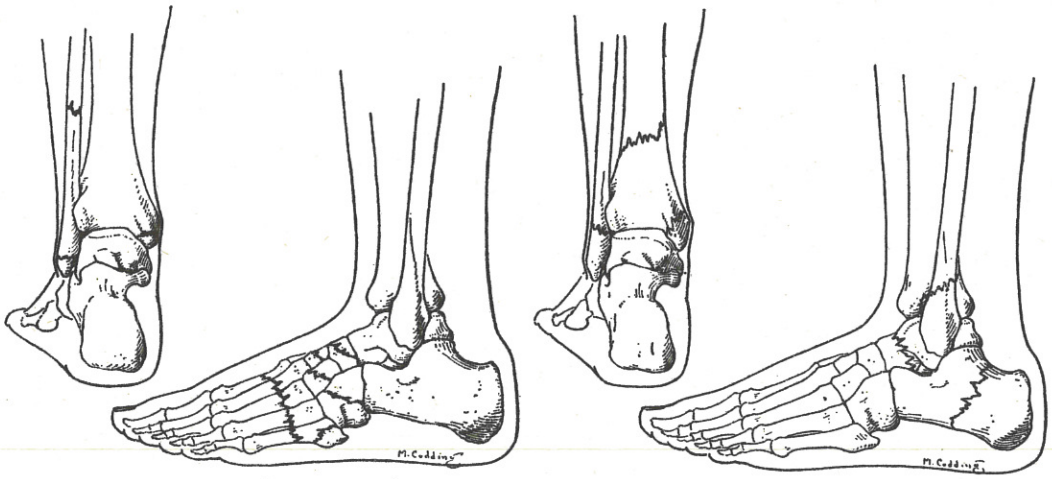

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FIG. 19. Indications for the plaster of paris walking boot.
FIG. 20. Contraindications for the plaster of paris walking boot.

These can be expressed even more simply in another way. If the surgeon in analyzing a fracture below the knee will ask himself whether weight bearing can in any way endanger the position of the fragments, the decision as to whether or not a plaster of paris walking boot can be used is easy. He should also remember that if immobilization is adopted as a method of treatment, it must include the joint proximal and the joint distal to the fracture.

Once a decision to use a weight-bearing boot has been made, the type of weight-bearing device must be considered. The worst possible arrangement is the single point crutch tip which not only permits but encourages violent torsion at every step and can produce a habit of eversion and external rotation in walking which may be difficult to correct. The ideal weight-bearing device should permit a close approach to normal heel-toe walking. This can be achieved by various rockers, special shoes, or simply by an inexpensive piece of old automobile tire and sponge rubber. (Am. J. Surg., March 1952, T. B. Quigley)

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Carcinoma of the Body and Tail of the Pancreas: Report of 37 Cases Studied at the State of Wisconsin General Hospital from 1925-1950

Carcinoma of the body and tail of the pancreas is by no means a rarity, yet early diagnosis of this condition has been difficult because the symptom complex has been considered vague and indefinite.

In reviewing the literature since 1939, it was found that several observers have published papers formulating the clinical and pathologic features of this disease. Duff in 1939 reported on 16 cases in which the diagnosis was established at autopsy. He estimates that carcinoma of the body and tail of the pancreas occurs with about one-third the frequency of carcinoma of the head of the pancreas. In his series, abdominal pain was the most common initial symptom, followed by constipation, belching of gas, eructations, swelling of the abdomen and weakness, in that order. These initial symptoms were compared to the initial symptoms in a like number of cases of carcinoma of the head of the pancreas. A marked contrast was noted in that jaundice was an initial symptom in 13 and abdominal pain in only 5 of 16 cases of carcinoma of the head of the pancreas. The average duration of the illness in Duff's series was slightly over 5 months. Also, the correct diagnosis was not made in a single instance, in spite of the fact that exploratory laparotomy was performed in 4 of them.

In studying the pathologic features of carcinoma of the body and tail of the pancreas, Duff stated that there was no difference in histologic features between the head and body and tail types, but explained the deep seated gnawing pain associated with the latter by the fact that the primary tumor, lying in the mid-portion of the pancreas, is in a position which enables it to erode into the celiac plexus. He also noted that carcinoma of the body and tail metastasized more widely and more massively than that of the head. This, he explained, is due to the anatomic arrangement of adjacent structures, i.e., the head is in contact with the peritoneum in only one relatively small area, at the lower margin of its anterior surface, while much of the body and tail has peritoneal contact. This allows for direct extension, more lymph channel erosion and, consequently, wider metastases. He also noted that liver metastases were more massive in carcinoma of the body and tail than in carcinoma of the head. This, he states, is also explained by the anatomy of the region, in that the splenic vein lies in intimate contact with the body and tail, and many short venous channels drain into it.

Levy and Lichtman in 1940 reported on 19 cases of carcinoma of the body and tail of the pancreas, and noted that abdominal pain intensified by the supine position and relieved by sitting and standing was an important feature of the disease. They also noted diabetes mellitus in 15 % of their cases, and a remarkable absence of anemia.

Russum and Carp in 1942 reported on 8 cases of carcinoma of the body and tail of the pancreas and recognized its relative frequency and the difficulty of diagnosis.

Thirty-seven cases of carcinoma of the body and tail of the pancreas were reviewed by the present authors, in order to formulate a definite combination of

signs and symptoms which may permit early diagnosis. A marked predominance of males (84 %) was found. The average age was 58.1 years; duration of illness, 9 and 1/10 months. The correct diagnosis was made in only 7 cases before laparotomy or autopsy, the common incorrect diagnosis being carcinoma of the colon. Three patients were diagnosed as psychoneurotics.

The most common symptoms were abdominal pain, weight loss, anemia, nausea, vomiting and constipation. Two findings which were unique, and which appeared with significant frequency in this disease, were venous thrombi and abdominal pain related to position. Multiple venous thrombi were noted in 22 %, the common veins affected being the femoral and iliacs. Abdominal pain aggravated by the supine position and relieved by erect position was noted in 43 %.

Ascites implies liver or peritoneal metastasis or portal vein thrombosis. Barium studies of the gastrointestinal tract were negative in the majority of the cases.

The difficulty of early diagnosis is apparent, and early search for venous thrombi and thorough blood studies in regard to amylase, prothrombin and clotting factors are urged.

The combination of weight loss, anemia, constipation, venous thrombosis and otherwise unexplained abdominal pain aggravated by the supine position should suggest immediately the possibility of carcinoma of the body of the pancreas. (Ann. Int. Med., Jan. 1952, B. K. Smith & E. C. Albright)

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Lymph Node Aspiration

Lymph node aspiration has become an important adjunct to the study of lymphadenopathies. The procedure is of great value for the diagnosis of Hodgkin's disease, lymphosarcoma, leukemia and infectious mononucleosis. An aspiration may be repeated at intervals, thus furnishing a guide to the effect of treatment. This procedure may also obviate the necessity of surgical excision of a node for biopsy. This report is based on the authors' experiences in 101 patients with biopsy of tissue aspirated from lymph nodes.

Although progress has been made within recent years in developing methods for the diagnosis of a number of blood dyscrasias, in Hodgkin's disease, lymphosarcoma, giant follicular lymphoblastoma and metastatic cancer in the nodes, often no definite diagnosis can be made on hematologic findings. At times the answer is found only on biopsy or necropsy. Lymph node aspiration is therefore a helpful diagnostic method. In addition, certain instances of infectious mononucleosis difficult of diagnosis and leukemia are recognized after study of tissue aspirated from a lymph node. Some conditions, such as tuberculosis, Boeck's sarcoidosis and metastatic cancer require further experience with the method of biopsy of tissue aspirated from lymph nodes.

TABLE 2

DESCRIPTION OF CELL TYPES NOTED IN TISSUE ASPIRATED FROM LYMPH NODES

CELL TYPE	FREQUENCY	OCCURRENCE	DESCRIPTION
1. Small lymphocyte	85%	Normal	Same as peripheral blood
2. Large lymphocyte	15%	Normal	Same as peripheral blood
3. Reticulum cell	Occasional		Large nucleus (2-3 times size of small lymphocyte) surrounded by irregular cytoplasmic processes
4. Syncytial cell	Occasional		Groups of reticulum cells in masses with a common bluish cytoplasmic background
5. Hemocytoblast	Occasional	Inflammations, lymphosarcoma	Large cell (4-5 times size of small lymphocyte) with large nucleus of fine texture with one or more nucleoli, surrounded by a deep basophilic cytoplasm (forerunner of lymphoid series)
6. Grumelée cell*	Many	Lymphatic leukemia	Lymphoid elements with "checkerboard" nucleus
7. Lymphoblast	Occasional	Normal and inflammations	Lymphoid elements with nucleoli
8. Infectious mononucleosis cell	Many	Infectious mononucleosis	Large lymphoid elements with indented nucleus and bluish cytoplasm
9. Myeloblast	Many	Myeloses	Same as peripheral blood
10. Monocytoid cell	Occasional	Hodgkin's disease	Like monocytes in peripheral blood, occasionally with more than one nucleus—Reed-Sternberg cells
11. Erythroid elements	Many	Extramedullary hematopoiesis; spent polycythemia; osteosclerotic anemia	Same as peripheral blood and bone marrow

* The term "Grumelée" is freely used by Tage Strunge in his monograph.[9] It is taken from the French language and literally means "clotted". It applies to a cell with a lymphocytic nucleus of mosaic appearance and a "checkerboard" configuration.

TABLE 3

CHARACTERISTIC FINDINGS IN TISSUE ASPIRATED FROM LYMPH NODES

I. HODGKIN'S DISEASE
- A. Dorothy Reed-Sternberg cells
- B. Increase in monocytoid cells
- C. Eosinophils
- D. Polymorphonuclear neutrophils (10 to 50 per cent)
- E. Increase in large lymphoid cells. Ratio of small to large (S:L) lymphoid cells is 30:70 (normal S:L, 90:10)
- F. Reticulum cells

II. LYMPHOSARCOMA
- A. Large lymphoid cells increased (S:L, 10:90). These cells have large nuclei, rare nucleoli and scant cytoplasm (no "checkerboard" appearance).
- B. Mitotic figures prominent
- C. Occasional hemocytoblast

III. LYMPHATIC LEUKEMIA
- A. Chronic
  1. Small lymphoid cells (Grumelée cells) increased (S:L, 90:10). These cells are medium-sized and have a "checkerboard" appearance.
  2. Large lymphoid elements (rare)
  3. No polymorphonuclear neutrophils
- B. Acute
  1. Few Grumelée cells
  2. Preponderance of lymphoblasts with nucleoli
  3. Rare mitotic figure
- C. Subacute
  1. Grumelée cells and lymphoblasts equal in number

IV. MYELOGENOUS LEUKEMIA
- A. Chronic, myelocytes (90 per cent of the cells)
- B. Acute, myelocytes (90 per cent of the cells)

V. LYMPHADENITIS, IRRITATIVE
- A. Ratio of small to large lymphoid elements (S:L, 80:20)
- B. Moderate number of polymorphonuclear neutrophils
- C. Occasional hemocytoblast
- D. Rare eosinophil

VI. LYMPHADENITIS, INFECTIOUS (PURULENT)
- A. Many polymorphonuclear neutrophils, degenerated, "toxic"
- B. Many smudged cells

VII. INFECTIOUS MONONUCLEOSIS
- A. Large cells with indented nucleus and abundant basophilic cytoplasm
- B. Lymphoblasts (rare)
- C. No polymorphonuclear neutrophils

VIII. NODE WITH METASTATIC CANCER
- A. Clusters of atypical cells
- B. Mitotic figures

IX. GIANT FOLLICULAR LYMPHOBLASTOMA
(Same as lymphosarcoma with addition of occasional monocytoid and small lymphoid cells)

TABLE 4

COMPARATIVE DIAGNOSTIC VALUE OF STUDIES OF PERIPHERAL BLOOD, BONE MARROW AND LYMPH NODE ASPIRATION IN PATIENTS WITH LYMPHADENOPATHY

	NO. OF BLOOD STUDIES	PER CENT OF CORRECT DIAGNOSES	NO. OF BONE MARROW STUDIES	PER CENT OF CORRECT DIAGNOSES	NO. OF LYMPH NODE STUDIES	PER CENT OF CORRECT DIAGNOSES
Hodgkin's disease	15	0	15	0	15	83
Lymphosarcoma	12	0	12	0	12	80
Infectious mononucleosis	5	100	5	0	5	100
Lymphadenitis	11	0	11	0	11	90
Metastatic cancer	7	0	7	0	7	100
Lymphatic leukemia	19	100	19	100	19	100

Approximately 50 % of the patients studied had leukemia, lymphosarcoma, Hodgkin's disease, lymphadenitis or metastatic cancer. There were also 5 patients with infectious mononucleosis and 3 with tuberculosis. Five of the patients were young children.

Table 2 offers a brief description of the cell type, the frequency of occurrence and the specific condition where these cells are found.

Based upon the morphologic character of these elements, tentative hematologic criteria for lymph node aspiration in different conditions are set down (Table 3).

In Table 4, one notes that lymph node aspiration provided the means for making the correct diagnosis most often in Hodgkin's disease, lymphosarcoma, lymphadenitis and metastatic cancer. In contrast, study of the peripheral blood alone was diagnostic in lymphatic leukemia and infectious mononucleosis. In this study, information was obtained by concomitant aspirations of the spleen in 15 of 19 patients with lymphatic leukemia, in each of the 12 patients with lymphosarcoma, in 3 of the 15 subjects with Hodgkin's disease and in 1 of the patients with giant follicular lymphoblastoma.

The question arises: will the diagnosis sometimes be overlooked in biopsy of aspirated tissue when the conventional biopsy would be more revealing? The authors have never found this to be true. The same objection was raised in 1938 concerning the feasibility of biopsy of aspirated bone marrow as compared to that of biopsy of trephined bone marrow. In time, it was found that each method has its place.

The authors predict that just as bone marrow aspiration has become almost indispensable in hematology, lymph node aspiration will prove of great value in replacing or supplementing surgical biopsy in the hematologic study of the lymphadenopathies. At any rate, cytologic study of material aspirated from the lymph node is meant to be an adjunct and not a substitute for histologic study. It is easier to convince a patient to have an aspiration for cytologic study or biopsy than to have him submit to the conventional surgical removal of a lymph node for biopsy. (Am. J. Clin. Path., March 1952, M. Morrison, A. A. Samwick, J. Rubinstein, M. Stich & L. Loewe)

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"Oral" Electricity

Most people would be surprised to learn that they carry around in their mouths the elements for two batteries or electric cells. Yet anyone with an elementary knowledge of electricity is aware that pieces of two different metals immersed in a liquid which conducts electricity (an electrolyte) constitute an electric cell, and that if the two pieces are connected with a wire, an electric current results. Except for the wire, this is exactly the situation which exists in a mouth which contains, for example, a gold filling and an amalgam filling. Normally these metals contact saliva at the exposed surfaces and bone-fluid in

the teeth; since both these liquids are electrolytes, we thus have the elements for two electric cells.

This is not news to dental researchers. Electrical phenomena in oral cavities have been described and discussed in numerous papers since 1878.

Until 1940 it was believed that electric cells were caused only by saliva. In that year, however, three investigators (Lain, Schriever and Caughron) showed that the bone-fluid was just as important as saliva in causing electric cells. Up to the present time, however, neither the electromotive force caused by fillings nor the normal current in an oral cavity have ever been measured; in fact in no instance have measurements been made from which these quantities could have been calculated.

Moreover, the problem is even more complicated than has been suggested above. Even a single metallic dental filling, contacting both saliva and bone-fluid constitutes an electric cell because the bone-fluid contacts the saliva through the tissue outside the tooth. A simple cell of this type may be made by connecting a glass of salt water and one of vinegar with a cloth wick in which the two solutions contact. Then, when the solutions are connected with a piece of bent wire, an electric current will pass through the wire.

The purposes of this investigation were (1) to devise methods, including the necessary theory and apparatus, with which it would be possible to measure, under ordinary oral conditions, electromotive forces and electric currents caused by metallic dental fillings; and (2) to make such measurements on a large number of fillings in "normal" oral cavities.

The authors have shown for the first time (1) that bone-fluid is just as important as saliva in causing electric currents; (2) methods for determining the net electromotive forces associated with metallic dental fillings; (3) methods for determining the electrical resistances associated with metallic dental fillings; (4) that these resistances are concentrated at metal-saliva and metal-bone-fluid contacts; (5) a method for determining the net electric current passing through a metallic dental filling under ordinary oral conditions and, (6) that the magnitude of the current through any metallic filling is independent of the number and kinds of other fillings in that mouth. (ONR Research Reviews, Feb. 1952, W. V. Schriever & L. E. Diamond)

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Gold Therapy for Rheumatoid Arthritis

The author presents a brief review of the development of gold therapy and a discussion of results obtained by investigators during the past 20 years. He appends his own results over the past 8 years in 26 patients. The conclusion is that gold salts exert a favorable influence upon the course of rheumatoid arthritis.

Emphasis has been placed upon careful selection of patients, small dosage of gold and weekly observation for manifestations of toxicity. The author refers to various theories concerning the mechanisms by which gold produces therapeutic

effects and, on the other hand, toxic manifestations. BAL should be employed early for the more serious of these toxic reactions.

Although further studies in the realm of hormones, such as ACTH and cortisone may lead to discoveries which will prevent or cure rheumatoid arthritis, such a goal has not yet been attained. It is believed that chrysotherapy deserves early consideration in the management of a patient with rheumatoid arthritis. (Ann. Int. Med., Feb. 1952, W. G. Hersperger)

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Aureomycin in Urinary Tract Infections

Management of infections of the urinary tract has become increasingly more satisfactory as more effective antibacterial agents are developed. Certain cases, however, fail to respond to specific treatment with any of the substances previously available, even after necessary surgery has been performed. Therefore, it is important to investigate thoroughly any new drug which may be suited for use in urinary tract infections.

Aureomycin was early considered in this type of infection because (a) it is effective in vitro against a variety of gram positive and gram negative bacteria, many of which are common offenders in the urinary tract; (b) it may be given for long periods without giving rise to increased bacterial resistance; (c) it is eliminated in the urine in an active form and in highly therapeutic concentrations; (d) it can be administered orally, thus eliminating the need for supervised injections; (e) as far as is known it produces no renal damage in moderate doses; (f) side reactions are minimal, even when given for extended periods. Moreover, the drug is most active in an acid medium. Because of these properties, a complete study was initiated late in 1948 to determine the precise role of aureomycin in the treatment of urinary tract infections.

Since this work was started, several reports have appeared in the literature which indicate the usefulness of aureomycin in this type of infection. The general findings in all of these studies were that aureomycin produced marked clinical and bacteriological improvement except in cases of Proteus or Pseudomonas infections. Some recurrences occurred if the medication was discontinued too soon. Many of the cases in these reports had been refractory to other forms of treatment. The doses used varied from 1 to 3 Gm. per day and toxic manifestations were either absent or were mild and of no serious consequence.

A total of 113 urinary tract infections in adults have been treated with aureomycin. Of these, 62 were acute cases and 51 were chronic cases.

The average dose of aureomycin was 250 mg. 4 times daily administered orally. Toxic side reactions were infrequent and generally of a mild nature.

Of the 62 acute cases, all but 1 showed either a definite reduction or an elimination of all clinical signs and symptoms, usually within 48 hours, and 36 of the urines (58 %) were sterilized. The most significant single organism in this group was Escherichia coli.

The chronic cases generally presented a more complex clinical and bacteriological problem than did the acute cases. Of the 51 chronic cases, 45 (88.2 %) were either improved or cured clinically during the course of treatment and 17 of the urines (33.3 %) were sterilized. The duration of treatment in this group averaged around 2 weeks. The most important single organism in this group was Aerobacter aerogenes.

Bacteriologically, the most important organisms in the entire series were streptococci and coliforms. These bacteria, either alone or in combination, appeared in 98 of the cases (86.7 %). Moreover, they are in general quite sensitive to aureomycin. Of the groups that are generally resistant to aureomycin, Proteus was found in a high percentage of chronic cases (25 %) and resistant Staphylococcus albus was found in a large number of secondary infections. Pseudomonas occurred infrequently in the entire series.

Of the total cases treated, 106 (93.8 %) showed either a clinical improvement or a complete remission of all signs and symptoms. Fifty-three (46.9 %) of the urines were sterilized. In general, the acute cases responded sooner and in a more definite manner than did the chronic cases. (J. Urol., March 1952, W. I. Metzger, L. T. Wright, F. R. DeLuca, C. E. Ford & F. Katske)

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The Question of Venipuncture

The question, "Should nurses do venipunctures?" revives an old problem of the status of the nurse in medical practice - a problem which is capable of assuming a shocking reality in the event of all-out war. The unreality with which we face such an eventuality can hardly be better evidenced than by the existence, side by side, of codes and legislation restraining the nurse from so elementary a procedure as entering a vein, while at the same time and in the same place, lay civil defense personnel with no more than a quick dip in technical training are being instructed in the intravenous administration of shock-combatting agents to the disaster victim. If atomic disaster comes, there is no preparation yet devised to do more than reach the surface of the mass of casualties to be dealt with. Physicians, first of all, will be hopelessly inadequate in numbers alone for the modern technics of dealing with burns and shock. They will be reduced also by casualties.

The logical stand-in for the physician in this situation is the properly trained nurse, and after the nurse, the technician. If venereal disease follows its usual rule and mounts in incidence, physicians will not be spared to attend to it. The nurse heading a clinic may find herself called upon not only to give the penicillin, but to decide to whom and in what amounts it shall be given. Even lumbar puncture might have to be performed by a specially trained nurse. It would seem that a redefinition of responsibilities, an enlargement of the nurse-technician field, and a redrafting of laws to afford protection to such personnel in the performance of their duties are in order.

The bulk of intravenous technical work now done concerns agents which are intrinsically less dangerous than those of the past. Kits are virtually foolproofed,

alkaline solutions and arsenicals are gone, and blood typing protection extends down to the very needle's end. It would be absurd to deny that under technical aid the wrong thing may be given in the wrong way; but such things happen in medical practice too.

The essence of the problem would seem to be a matter of training first of all; and the carrying out of procedure, wherever possible, under competent direction or orders. Where such order or direction cannot be made available, either as a safe code or in person, the nurse technician may perforce have to proceed alone, and for that eventuality he or she should be given a special background of additional instruction.

The lowly status of venipuncture as a technical procedure has been a principal factor in delaying the elevation of intravenous therapy to a level of educational dignity sufficient to insure adequate training. As in all manipulative work, there are people who instinctively do it right; and there are others who equally instinctively do it wrong. Fortunately, by breaking a procedure down into certain standard essential elements or motions, almost anyone who can qualify as a nurse can "do" venipuncture and give reactionless intramuscular medication. Training can make the selected nurse at least the equal in skill and dependability of the run-of-the-mill physician in intravenous and intramuscular procedure involving even definite hazards.

It appears then, that though intravenous procedure should normally have medical supervision and decision, the nurse trained to do this work can also be taught to meet the simpler emergencies that may be encountered. Experience shows that they can be trusted, always with the provisos of (1) aptitude, (2) selection, (3) training, (4) knowledge of what not to do as well as what to do and (5) understanding of when to seek help. (Am. J. Nursing, March 1952, J. H. Stokes)

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X-Ray Visualization of the Intervertebral Disk

Although the results of surgical treatment of protruded intervertebral disks are better than those when such treatment is not carried out, nevertheless they do leave something to be desired. Therefore, any method of investigation which promises to add to our knowledge of this problem deserves careful consideration. For this reason the author investigated Lindblom's method of roentgenographic visualization of the intervertebral disk. In 1948 K. Lindblom, of Sweden, published his description of a method of direct injection of the intervertebral disk with a rapidly absorbable water-soluble contrast substance. Although only 15 disks had been so examined, he considered the method of great practical value and superior to myelography in accuracy. In 1950 he published the results of injection of 52 lumbar intervertebral disks.

The purpose of this preliminary report is to discuss the authors' experience with the injection of 169 disks. The technic which they employ is as follows: The patient assumes a modified knee-chest position by bending over a table equipped with a knee rest. A rolled blanket beneath the abdomen increases the lumbar

flexion. The tube and the Bucky diaphragm are arranged for a lateral roentgenogram. The skin is thoroughly prepared, and then injection of procaine is made at the site of puncture. A 21-gage needle, 2 1/2 in. (6.3 cm.) in length, is inserted between the spinous processes directed toward the disk and advanced into the spinal canal. The stylet is then removed, and a 26-gage needle, 3 1/2 in. (9 cm.) in length is passed through the shorter heavier needle until it encounters bone or enters the intervertebral disk. The position of this needle is then checked by means of a lateral roentgenogram and altered if necessary. Although Lindblom recommends fluoroscopic control of the needle insertion, the present authors have not found this measure to be satisfactory because of difficulty in visualization of the fine needle, especially in the fifth interspace. The fine 26-gage needle is employed to minimize the trauma of the disk puncture while the 21-gage needle, serving as a sheath, gives it the necessary rigidity.

Iodopyracet injection (35 % diodrast) is used as the contrast substance. One-half to 2 cc. is injected into the disk by means of a 2 cc. Luer-Lok syringe. Lindblom recommends a mixture of procaine and iodopyracet. Procaine is not added since it is believed that any pain produced is due to distention of the disk, with resulting pressure on the neighboring ligaments and nervous elements, which are beyond the locus of direct action of the injected material. Immediately after the injection, lateral and anteroposterior roentgenograms are made with the needles in situ.

By the injection of diodrast it is possible in a high percentage of cases to differentiate between a normal disk, a degenerated disk, and a degenerated disk with posterior protrusion. The normal disk is usually characterized by a pooling of the diodrast in the spaces above and below the intact nucleus, producing a bilocular shadow. In the protruded disk this bilocular shadow is seldom present. Reproduction of sciatic pain during the injection occurred in two-thirds of the cases of proved protrusion. This sign should not be relied on when not accompanied with roentgenographic visulization of a protrusion of the disk. In approximately one-third of the cases of surgically proved protruded intervertebral disk, some of the injected dye was visible in the epidural space on the roentgenograms. The presence of dye in the epidural space, however, is not pathognomonic of a tear of the posterior spinal ligament and is of significance only when accompanied with roentgenographic evidence of protrusion.

The procedure has not been free of morbidity. In 1 of 89 patients, septic necrosis of the disk developed after injection. The procedure does not require hospitalization, although in a few instances the sciatic pain reproduced by the injection was so severe that intravenous administration of thiopental (pentothal) sodium was required to complete the injection.

Increasing experience with this test should lead to greater accuracy in interpretation and a better understanding of the disk syndrome. It provides a method of direct visualization of the pathologic process as contrasted with the indirect evidence afforded by myelography. It is too early as yet to determine the relative accuracy and morbidity of these two procedures.

This method has also demonstrated two features of clinical significance. The first is that an extremely slight increase in the height of the protrusion, such

as is produced by the injection of 0.1 cc. of fluid into the disk, may be responsible for the exacerbations which characterize the syndrome of the protruded disk. The second is that the symptoms of pathologic changes in the disk which occasionally follow lumbar puncture are probably due to low-grade infection introduced into the disk by the needle rather than to mechanical trauma to the posterior spinal ligament, to the annulus or to the nucleus pulposus.

It is felt that more experience is needed to establish the value of this procedure. It has certain disadvantages: 1. It is not free of morbidity. 2. Considerable care and experience are necessary in accomplishing the injection and in interpreting the results. 3. It may result in the overlooking of a tumor of the cauda equina which would have been readily disclosed by myelography. (A. M. A. Arch. Surg., March 1952, W. J. Gardner, R. E. Wise, C. R. Hughes, F. B. O'Connell, Jr. & E. C. Weiford)

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Tinted Optical Media

In the last year and a half the public has been offered a number of types of "tinted" glasses designed for various purposes. The public also has been bombarded with conflicting articles in lay, semi-professional and professional magazines concerning the use of tinted lenses. These articles and reports coming from good, bad and indifferent sources are frequently contradictory in whole or in part, leaving the public, and often professional people, completely confused.

In view of this situation and in view of the highly technical nature of the subject, the Joint Committee on Industrial Ophthalmology representing the American Academy of Ophthalmology and Otolaryngology and the American Medical Association was requested to set up a Sub-Committee, to study the problem of "tinted optical media." This Sub-Committee, of world famous scientific authorities on filter lenses and "tinted optical media," was instructed to clarify the basic principles involved, by definition, and to answer certain specific questions.

The report of the Sub-Committee is based on complete and exacting scrutiny of each and every word and implication and on the best scientific information available. "General Comments" from this report are quoted:

In considering the use of glasses to reduce overhead brightness either indoors or out, it is to be remembered that a visor or broad-brimmed hat is a most effective shield, and will frequently obviate the necessity for sunglasses.

This Sub-Committee condemns the use of any type of "night-driving lens." Any such lens, whether colored, reflecting or polarizing, reduces the total light transmitted to the eye and renders the task of seeing at night more difficult. Similarly, it condemns the use of colored windshields (which may prove a hazard at night) or the promotion of removal filtering or polarizing shields as a useful aid in night driving.

As applied to the general civilian population, this Sub-Committee endorses the thesis that sunglasses should be worn only when the intensity of light produces discomfort, and that the penalty for their wear otherwise is the reduction of the

individual's tolerance to bright light. Unless indicated by definite ocular pathologic processes, the habitual use of sunglasses indoors is most objectionable.

It is emphasized that no commercially marketed sunglass is sufficiently dense to permit direct gaze at the sun. Much denser filters are required for safe view of a solar eclipse.

With respect to the mildly tinted lenses designed for constant wear, it is recognized that the more dense of this group are useful in the presence of photophobia due to pathologic conditions. In the absence of pathology those more dense tints should not be prescribed for constant wear. The total light transmission of the lighter tints differs so little from that of crown glass that they are not considered effective filters in pathologic states. The Sub-Committee has no objection to the use of the very mildly tinted lenses if the patient desires them and can afford the additional cost. It is emphasized, however, that they do not agree that tinted lenses offer physiologic advantage over crown glass for use under fluorescent lighting or other lighting situations.

The Sub-Committee is aware of the investigations which have shown that prolonged exposure to bright sunlight impairs night vision subsequently. This factor is of extreme importance in certain military situations but of very questionable importance in civilian life. The motorist viewing the road ahead, under headlights is dependent upon photopic vision; and the Sub-Committee is not convinced that photopic vision is appreciably improved by the use of sunglasses. Rather, it is believed that the inadvertent wear of sunglasses at dusk constitutes a far greater hazard in driving on the highways than any possible decrement in vision at low levels of illumination.

The Sub-Committee agrees in general with the statements contained in the article by Dean Farnsworth, "Standards for Sunglasses," published in Sight Saving Review, 20:2, 81 (Summer) 1950). (Subcommittee: J. L. Matthews, M. D., LCDR Dean Farnsworth (MSC) USNR, E. V. Kinsey, Ph. D. Indust. Med. & Surg., March 1952, Joint Committee on Indust. Ophth., A. D. Ruedemann et al)

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A Scintillation Counter for the Diagnosis and Localization of Intracranial Neoplasms

The selective concentration of certain materials in intracranial neoplasms is the basis of a new method for the localization of brain tumors. By using a radioactive substance the location of the tumor may be identified by detecting a localized area of high radioactivity. This method was first developed by Moore and his associates at the University of Minnesota, who injected fluorescein tagged with I^{131} intravenously and then measured the emitted gamma radiation with Geiger counters placed on the outside of the intact skull.

These methods, and others which have been developed, all depend upon the use of a conventional Geiger-Müller counter for the measurement of the emitted radiation. The efficiency of this instrument for the detection of gamma rays is

extremely poor, being approximately 0.2 % for a thin window Geiger tube. This results in a low counting rate, requiring prolonged counting times in order to obtain a reasonable accuracy, since the statistical variations of a number of counts is proportional to the square root of the total number of counts recorded. Davis et al. reported that after the injection of 1.1 mc. of diiodofluorescein and using a mica window Geiger-Müller counter, their counting rate was of the order of magnitude of 3 to 20 counts per second. This low counting rate required a counting time of 3 to 5 minutes for each area counted in order to obtain any reasonable statistical accuracy. Considering that 32 positions over the skull are usually counted, the time for the procedure runs from 90 to 160 minutes.

Consequently, a project was undertaken in the authors' laboratory to attempt the development of an improved method for the detection of gamma rays in order to reduce the time involved in this method of brain tumor localization and to reduce the amount of radioactive material injected into the patient. The scintillation counter is based on the property possessed by certain crystals and liquids to emit flashes of light or scintillation when struck by ionizing radiations. This phenomenon was known very early in the field of nuclear physics.

The scintillation counter does not present many advantages over the Geiger counter for the detection of beta and alpha rays, since the latter is nearly 100 % efficient for the detection of these particles; however, the efficiency of the scintillation counter for the detection of gamma rays is about 200 times greater.

Before each localization procedure, the scintillation counter is standardized by introducing a small radium source embedded in a plastic plug into the cup forming the head of the instrument. The voltage on the dynodes of the photomultiplier is then adjusted to give a standard counting rate. This calibration is necessary since the counting rate of the instrument is strongly dependent on the voltage between the dynodes, and the reading of the voltmeter cannot be relied upon for this adjustment.

The amount of dye injected intravenously for clinical work is 0.25 mc. of radio-diiodofluorescein. The counting rate observed at the F-7 position on the skull of a "normal" patient 20 minutes after injection of the dye is about 1,000 counts per second with a background of 24 counts per second. An interval of about 10 seconds of actual counting per point is required. The total time for survey covering a total of 32 positions on the skull of a patient is 15 minutes, not including the 15 to 20 minute interval after the injection of the dye required for equilibration. Thus, the increased efficiency of this instrument has reduced the time of brain tumor localization surveys from 2 to 3 hours to 20 to 30 minutes. The amount of radioactive material required has been reduced by a factor of 4, since counting rates of 600 to 700 counts per second are obtained after the injection of 0.25 mc. of diiodofluorescein.

The instrument has been found to be quite stable and reliable. (Am. J. Roentgenol., Rad. Therapy & Nucl. Med., March 1952, M. Ter-Pogossian, W. B. Ittner, III, W. B. Seaman & H. G. Schwartz)

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Prescription of Physical Therapy in Poliomyelitis

There are three main requirements for intelligent physical treatment in poliomyelitis: (1) an understanding of the pathologic process and of the physiologic effects of physical agents, (2) competent technical personnel and (3) adequate equipment, which may be modest and frequently improvised.

Acute Stage. As long as there is any fever or evidence of increasing weakness, one must enforce almost complete bed rest. During this period the physical therapist carries out passive motions of the trunk and all extremities through a complete range of motion. Using care to prevent sagging or undue tension on tender parts, she does each movement at least 10 times and preferably repeats each visit twice daily. The most important motions are trunk flexion, knee flexion, hip flexion with the knee extended, plantar flexion, hip internal rotation and shoulder abduction and rotation.

Some deformities result from neglect and ignorance, but certain types cannot be prevented by the most faithful treatment. These include calcaneal foot in total gastroc-soleus paralysis, adductor contracture of the shoulder and flexor abduction contracture of the hip. Gravity effects are the most easily preventable. Marked imbalance of agonist-antagonist muscles constitutes the least preventable deforming factor.

Intermediate Stage. The acute stage can be considered ended when the patient is out of isolation. There then is no danger of further invasion, although the patient may still be in a precarious state because of respiratory or visceral involvement.

Again the objectives are to get rid of residual muscle shortening reactions and discomfort, to continue muscle reeducation and to begin resistance exercise in order to restore strength. Walking can be permitted if body strength permits and deforming stresses can be avoided. Residual tightening can be treated by whirlpool or Hubbard tank treatments followed by fractional stretching. Incoordination and substitutions are vigorously combatted. Some of the early recovery represents reversible neuron sickness with transient paralysis. Much of the rapid recovery noted in the early convalescent period undoubtedly represents the increase in strength which would follow recumbency with any acute febrile disorder of comparable severity.

Another fraction of recovery represents the Van Harreveld phenomenon (reinnervation of muscle fibers by split axons from neighboring uninjured units). This process has not been proved to occur in human beings following poliomyelitis but is known to occur in monkeys after partial anterior root section.

One often uses an interrupted schedule in the intermediate phase, building the basic treatment around progressive resistance exercises. As is true of many other diseases, increasing complexity of procedures and equipment may result in care of selected patients in this phase at special centers, whereas early treatment often can be properly done in the small hospital and by the average practitioner, internist or pediatrician.

There are several reasons for interrupting treatment. Children get "burned out" on continuous treatment and often give only token cooperation. There are bad

psychologic effects from continuous treatment which are often worse than the physical defect it is designed to prevent or correct. And, finally, the gradient of improvement on progressive resistance exercise is no faster than occurs in interrupted schedules. The cost of treatment is a significant factor. It is an imperative in medicine to reduce every possible cost as long as there is no important compromise with quality of treatment.

Late Phase. One should give progressive resistance exercises from 4 to 6 times weekly until no further gains are noted. The 10 resistance maxima or assistance minima give a quantitative measure of improvement in each muscle or muscle group. At the conclusion of such a bout of exercise one usually gives the patient a 3 to 4 months' vacation but make such checks as are necessary on scoliosis, foot mechanics, brace fits and such. Whenever possible one should use home treatment for progressive resistance exercise, checking on the level of achievement at weekly visits. In this way one uses plant and personnel for a much larger treatment volume and is enabled to treat patients who live 100 or 200 miles away. The patient who is not exercising quickly betrays himself.

Progressive resistance exercise is invaluable in helping the patient to gain realistic insight into his limitations and the permanence of disability. When two or three bouts of exercise fail to budge the functional level of a muscle, the patient is convinced.

Post-Convalescent Phase. There is rarely any excuse for intensive physical therapy after the twelfth month unless early treatment has been utterly neglected. Although orthopedic procedures sometimes may be wisely done as early as one year after onset, the post-convalescent phase, which lasts the rest of the patient's life, is the phase of surgical correction. One may sometimes give intensive treatment for brief periods and clearly-defined objectives. These include re-education of tendon transplants or final instruction in crutch gaits, wheel chair transfers and other self care activities. Whereas substitute motions in early disease must be sternly combatted, one may permit useful ones in the final evaluation. Here one is certain which functions are permanently lost.

Prognosis in Poliomyelitis. In the author's experience muscles which are notoriously poor to recover include the opponens pollicis and other small muscles of the hands and feet; the abdominals, especially the transversalis; the abductors and external rotators of the shoulders, and the serratus anterior.

Muscles showing a decidedly favorable tendency to recover (with many exceptions) include those innervated by the cranial nerves; the neck muscles and trapezius; the elbow flexors; the intercostals; the knee extensors, and the plantar flexors. Other muscles are in an intermediate position.

One can get a good idea of prognosis in a given muscle at the sixth month by noting its functional level on a manual muscle test, the amount of scaphoid atrophy (hollowing, not just flattening), and by its response to diagnostic electric currents and electromyography.

In paraplegic poliomyelitis much depends on the age of the patient and the amount of involvement of the shoulder depressors and hands. Stair climbing with braces and crutches usually will not prove practical if the hip elevators are

missing (quadratus lumborum, lateral abdominals, latissimus, lumbar sacrospinales and opposite gluteus medius). When independent stair climbing is impossible, the patient will rarely continue using braces and crutches. Then one must settle for the best possible wheel chair adjustment. These decisions should be much more liberal in children than in adults.

The quadriplegic poliomyelitis patient often requires little treatment. Sometimes these unfortunates are literally unable to do anything but aliment, talk and raise their heads. Any slight residual function must be developed maximally both for morale purposes and to reduce the burden of care on others. Plastic splints and modified spoons, combs, toothbrushes and such can sometimes be improvised for these purposes.

Abuse of Physical Therapy in Poliomyelitis. The worst abuses consist of useless treatment and overtreatment. Failure to treat at all is not nearly as bad.

The commonest abuse is failure to define goals and prescribe precisely. Failure to outline prognosis realistically at the beginning may start the patient on a long and expensive trek for a magic cure. The lengths to which wishful thinking and self deception can lead some patients or their families are truly fantastic. The psychologic damage to small children from over-hospitalization and unnecessary separation from the family is incalculable. The lavish waste of public funds on useless treatment is regrettable on many scores, not the least of which is the unfortunate philosophy conferred on the patient. He may come to think of the world as owing him a living and that he deserves some special commendation for having had the bravery to contract poliomyelitis.

The idea should be quickly debunked that a mystic aura surrounds poliomyelitis, that it is untreated except by the elect, and that it must always be necessarily so expensive. (J. Missouri M. A., March 1952, S. Mead)

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Nutrition in Public Health

A large percentage of the world's population today is malnourished. This is true even in the United States; it is much more true of the teeming populations of Asia, living in large part on a diet of rice.

The problem of world malnutrition can be approached from several directions: (1) increasing the arable area of the world; (2) education to improve eating habits and customs; (3) public health measures for the enrichment of staple foods.

The first and second of these, coupled with a decrease in world population, represent the most desirable long-range solutions. The third approach, however, is both practical and expedient. It represents a short-range answer which can be put into effect with a minimum of time, effort and expense and with an immediately perceptible achievement in the saving of millions of human lives. (Borden's Rev. Nutrit. Res., Dec. 1951, Ruth Woods)

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Manual of Free Escape From Submarines

Free Escape, that is, escape from a sunken submarine without the use of any breating apparatus, is taught at the Escape Training Tank, Submarine Base, New London, Connecticut, as an emergency alternative to the use of the Submarine Escape Apparatus (sometimes referred to as the "lung"). For several years past, the instructors at the Escape Training Tank have employed this technic in their work so that it is commonplace with them.

On 19 August 1946 a program of investigating methods of teaching free escape was started at the Escape Training Tank in New London. By 1 July 1951, more than 2,000 individuals had received some training in free escape. These trainees had made a total of more than 7,500 free escapes from various depths, including 2,244 from 50 feet and 411 from 100 feet.

The theory of free escape is simply if the weight of the water displaced by a body is greater than the weight of the body, the body has positive buoyancy and will rise to the surface from any depth. In humans this depends a great deal on the capacity of the lungs and the amount of fat on the body. Many people have positive buoyancy and will float with their lungs filled but will sink if they exhale the air in their lungs. When they exhale they decrease their size and the weight for each unit of volume becomes greater. When this weight per unit of volume becomes greater than that of water the body has negative buoyancy and will sink like a stone.

In practice it has been observed at the Escape Training Tank that 3-4 % of the trainees have negative buoyancy. It may be that these men had a heavy body structure and very little fat that accounted for their negative buoyancy. It is more likely that most of these men did not take their maximum inspiration and as a result did not have their maximum displacement.

If a man has positive buoyancy at the surface, then when he fills his lungs to the same extent at any given depth, he will also have positive buoyancy regardless of the depth.

Proper control of exhalation is the key to success in free escape. Exhaling too rapidly reduces the buoyancy and slows the ascent. Exhaling too slowly increases the hazard of serious injury to the lung tissue. At any considerable depth the rate of exhalation should at first be very slow, about like one might blow through a soda straw. As the man rises through the water, this rate should be increased gradually so that the rate of expansion of the air in the chest is compensated and no positive pressure is created in the lungs.

If a man finds he is slowing down or has stopped in his ascent, he has lost some buoyancy. This is usually due to having exhaled too rapidly, either in too large a stream at first or by having exhaled large bubbles of air. In such a circumstance he should not thresh about in the water. He should stop exhaling for a moment and swim upward with deliberate strong downward sweeping strokes. Two or three strong strokes should raise him 6 or 10 feet in the water and this probably will be sufficient to restore his buoyancy. This is a critical point and the escapee must master his fears. He must swim upward until he regains his

buoyancy and then he must begin to exhale once more. To panic upon discovery that buoyancy is lost may lead a man to hold his breath and swim to the surface. This could very readily produce a serious or even fatal injury to the lungs.

The Negatively Buoyant Man. The importance of proper exhalation in making a free escape is probably greater for a man having negative buoyancy. It is only a matter of common sense that a negatively buoyant man will try to take with him as buoyant an object as he can lay hands on whether it be a pillow case, upended trousers with knotted cuffs or an upended bucket. The air trapped in one of these will tow him to the surface, usually quite rapidly. Since his speed of ascent is likely to be quite rapid he must pay even more attention to the proper manner of exhalation, for his margin of safety is less.

A practical point worth mentioning here is that the use of a metallic object, such as an upended bucket, for its positive buoyancy is not without its hazard. As the air vents from beneath such an object the streaming characteristics are disturbed. Approaching the surface this may cause the object to tumble and strike the man on the head. Or on reaching the surface it will stop abruptly and the man will run into it headfirst from below. The speed of ascent is such that such a blow would, at the least, be unpleasant.

Developmental work has been done on an inflatable life jacket with spring loaded vents for giving positive buoyancy to any wearer. Since such articles speed up the rate of ascent greatly, it probably is advisable to exhale as much as possible at the moment of casting loose for the ascent. This may seem an heroic thing to do but it must be remembered that as one rises through the water the air in the lungs expands and it probably will still be necessary to exhale considerable air before reaching the surface.

Limitations And Hazards of Free Escape. The limiting factor for successful free excape is not the pressure at depth due to effects of pressure of itself. Experience in deep sea diving has shown that compressed air has an intoxicating or narcotic effect at pressure equivalent to depth. A few people feel a trifle giddy at 100 feet. At 200 feet most people feel exhilarated and some show a slight mental confusion. At 300 feet most show definite effects in their mental reactions. These effects have been attributed to the nitrogen which makes up approximately 79 % of atmospheric air. The observed reactions are much the same as those noted in alcoholic intoxication. Because of the complexity of the maneuvers required in flooding a compartment and making a free escape, this one factor alone indicates that not many people will retain sufficient self discipline to be successful at depths greater than 300 feet. It should be noted that a few successful free escapes have been made from depths between 200 and 250 feet by men who had never received any training in the method. These cases must be classified as "fortunate circumstances."

Because men cannot be suddenly decompressed with safety from any considerable exposure to pressure, the whole procedure must be executed as rapidly as possible once the decision has been made and preparations are completed. It takes some time for gases to be absorbed by the body at any depth. The shorter the exposure time, the less gas absorbed and the less is the hazard of "bends".

By executing the maneuver as quickly as possible the hazard of "bends" may be minimized. "Bends," or more properly speaking caisson disease, is one of the lesser hazards in submarine escape and is obviated by speed of execution.

The greatest hazard in making a free escape arises from inadequate exhalation of air from the lungs. If the man exhales too slowly, positive pressure will be built up in the lungs which may tear the lung tissue and result in either hemorrhage into the lungs or air being forced into the blood stream (air embolism). Cases of air embolism have been described from depths as shallow as 10 feet which implies a positive pressure of not more than 4.5 pounds per square inch. Laboratory experiments suggest that even less pressure can cause serious injury. As the man ascends he should exhale enough so that he never has any feeling of distension in his chest.

Trainees are always concerned with the question of having enough air to reach the surface. It must be remembered that as a man rises to the surface the air is expanding in his lungs. Even if he does exhale a bit too much, a few strong deliberate strokes swimming upward will allow the remaining air to expand and fill his chest. Observation of more than a thousand trainees indicates that the air in the lungs contains sufficient oxygen to be more than adequate to last a man until he reaches the surface.

Loss of sense of direction in dark water is a hazard, particularly to the negatively buoyant man. Even a man who can float at the surface may exhale too much air and become negatively buoyant. Unless there is enough light to show, or vision is sufficiently good to give a reference point, it can become very confusing in the water. A man may think he is going up when he really is sinking. There seems to be only one solution to this problem and that is to take some buoyant object along--be it a pillow case, ditty bag, trousers with knotted cuffs containing trapped air, a life jacket, or some other object holding entrapped air.

Essentials of Free Escape Technic. 1. Any man who can float at the surface has positive buoyancy and can float to the surface from any depth, if his lungs are filled to the same extent. Men who cannot float at the surface have negative buoyancy and will need to use some additional buoyant object to bring them to the surface.

2. Goggles are not essential to free escape. Although contributing somewhat to comfort they frequently will not improve vision appreciably under practical conditions. If used they should not be worn over the eyes while a compartment is being flooded down.

3. It is desirable to seal off the nose with a nose clip or by pinching it shut with the fingers.

4. It is advantageous to escape, survival and rescue if all escapees come up an ascending line attached to a buoyant object, and remain in a group.

5. Proper control of the breath is the key to a successful free escape. The air in the lungs must be exhaled slowly at first and then with steadily increasing volume to avoid building up positive pressure in the lungs. Exhaling too rapidly slows the rate of ascent. Exhaling too much may destroy positive buoyancy. Exhaling too slowly may cause excess pressure to rupture the lung tissue. It is safer to err on the side of exhaling too rapidly because lost

buoyancy can be restored by holding the breath and swimming up for a few strokes.

6. The proper position for free escape is body erect, legs straight and held together, one arm extended above the head, the ascending line in the opposite hand or in the crook of the opposite arm. (MRL Report No. 184, U. S. Naval Submarine Base, New London, Conn., 10 Jan. 1952, CDR H. J. Alvis, MC, USN)

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Studies on the Epidemiology and Control of Filariasis

A colony of Aedes pseudoscutellaris was established in the air-conditioned and mosquito-proofed insectory in June, 1950. A climatizer has been subsquently used to study the effect of various closely controlled temperatures and relative humidities upon the biology of the mosquitoes. Optimum conditions for development and survival are at temperatures of 75 to 80° F in an atmosphere almost completely saturated with moisture. Egg laying occurs principally upon a moist surface immediately above small collections of water rather than on the water surface itself. They prefer fresh water to salt water but in the absence of fresh water a few mosquitoes will lay eggs on or above water with salt content high enough to prevent subsequent development. The chemical receptors, which permit such distinctions, were shown to be on the tarsal segments of the legs.

Mating takes place principally in the early morning hours. Egg laying takes place in any of the daylight hours. Under controlled laboratory conditions feeding will take place in any of the daylight hours if the temperature is between 75 to 85° F but under natural conditions there is little feeding in the heat of the day. The greatest amount of feeding occurs on overcast days and commonly occurs during rains.

Each female lays about 40 eggs, nearly twice as many as previously reported. Eggs will survive when dried, after embryonation, 2 to 3 months. Under optimum conditions (75-80° F in a moist atmosphere) the cycle from egg to egg may be completed within 11 to 12 days.

The females prefer human blood but may be induced to feed on closely cropped animals such as guinea pigs, rats, dogs and chickens.

Above the surface of the water, there is a marked tendency to deposit eggs in folds or crevasses, which are moist and will retain moisture, rather than on flat surfaces which are less moist and will more quickly dry. Dark surfaces are preferred over white. The great bulk of the eggs are deposited within a nick above the water surface. A. aegypti will deposit eggs indiscriminately on plain surfaces and in folds or crevasses. However, they too prefer dark surfaces and lay most of their eggs within a nick of the water surface. This may well reflect the evolution to the more domestic life of A. aegypti as compared to the fact that A. pseudoscutellaris is still a "wild" or "bush" mosquito.

Analysis of all of the pre-control survey data on the mosquito reveals that, at least in American Samoa, transmission is potentially over 10 to 20 times as

likely in the bush as in the cleared villages. Even when the houses are only a short distance from the bush there appears to be relatively little danger of transmission therein. Only when the house is partially or wholly encompassed by the bush does it constitute a place of potential transmission. There is no evidence that these mosquitoes ever rest within the houses. Preliminary analysis of the data on the infection in man and of the data from the control studies appears to support this concept.

Both the laboratory studies on the mosquitoes and the statistical analysis of the field data are leading to the conviction that this disease is transmitted primarily in the bush and probably cannot be maintained otherwise. (Johns Hopkins University School of Hygiene & Public Health, Feb. 1952, G. F. Otto - Preliminary Report)

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Short Courses in Psychiatry

Applications are now being accepted by the Bureau of Medicine and Surgery for 6-months courses in psychiatry at the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Maryland. The courses will convene on a continuing basis. Medical officers (USN and active duty USNR) with an interest in psychiatric medicine are eligible to apply for the courses which will include intensive didactic and practical instruction in basic psychiatry, clinical psychiatry, clinical neurology, administrative psychiatry and special therapies.

The U. S. Naval Hospital, Bethesda, Maryland, is approved for training in psychiatry by the American Medical Association and satisfactory completion of the course will be applied toward meeting the training requirements for eligibility for Board certification. The short course program will be conducted in addition to the established long-term psychiatry residency programs being conducted under the auspices of BuMed, applications for which are still desired from medical officers meeting the eligibility criteria set forth in BuPers C/L 49-50 of 7 April 1950.

Requests to attend the course should be submitted via official channels to the Chief, Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. Applicants for the course must include in their request an agreement to remain on active duty for one year following completion of the course or for one year beyond the expiration date of any service for which they may be currently obligated, whichever is longer. Assignment to the course will constitute a permanent change of duty, permitting transportation of dependents and household effects. (Professional Div., BuMed)

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Fleet Staff Medical Officers, District Medical Officers, and Commanding Officers, Other Than Hospitals

Staff Medical Officers.

CinCPAC.....RADM C. A. Broaddus (MC) USN
ComSerPAC.....CAPT O. L. Burton (MC) USN
ComNavFE.....CAPT R. M. Gillett (MC) USN
CinCLANT.....CAPT H. A. Gross (MC) USN
ComSerLANT.....CAPT J. C. Denneen (MC) USN
CinCNELM.....CAPT H. J. Bowen (MC) USN
ComMSTS.....CAPT C. P. Archambeault (MC) USN
ComWestSeaFrontier.....RADM A. H. Dearing (MC) USN
ComEastSeaFrontier.....RADM C. F. Behrens (MC) USN
CG, FMF Ground LANT.....CAPT E. B. Keck (MC) USN
2d Marine Div., FMF.....CAPT C. M. Parker (MC) USN
CG, FMF Ground PAC.....CAPT R. S. Silvis (MC) USN
1st Marine Div., FMF.....CAPT L. P. Kirkpatrick (MC) USN

District Medical Officers.

First Naval District.....CAPT G. E. Gayler (MC) USN, Acting
Third Naval District.....CAPT J. J. Goller (MC) USN
Fourth Naval District.....CAPT J. L. Frazer, Jr. (MC) USN
Fifth Naval District.....RADM S. S. Cook (MC) USN
Sixth Naval District.....RADM J. B. Logue (MC) USN
Eighth Naval District.....CAPT O. A. Smith (MC) USN
Ninth Naval District.....RADM C. A. Swanson (MC) USN
Tenth Naval District.....CAPT W. C. Baty (MC) USN
Eleventh Naval District.....RADM P. A. Albright (MC) USN
Twelfth Naval District.....RADM A. H. Dearing,(MC) USN
Thirteenth Naval District.....CDR D. J. O'Brien (MC) USNR, Acting
Fourteenth Naval District.....CAPT J. P. Brady (MC) USN
Fifteenth Naval District.....CAPT H. E. Robins (MC) USN
Seventeeth Naval District.....CAPT A. J. Walter (MC) USN

Senior Medical Officers.

Severn River Naval Command.....CAPT C. R. Ball (MC) USN
Potomac River Naval Command.....CAPT I. B. Polak (MC) USN

Commanding Officers, Research Units.

NMRI, NNMC, Bethesda, Md.....CAPT W. E. Kellum (MC) USN, CO
NMRL, New London, Conn.....CDR G. J. Duffner (MC) USN, OinC
NMFRL, Camp Lejeune, N. C.....CAPT C. B. Galloway (MC) USN, CO

NAMRU-4, Great Lakes, Ill.....CDR J. R. Seal (MC) USN,MOinC
NAMRU-1, Berkeley, Calif.....LCDR L. F. Miller (MC) USN, CO
NAMRU-3, Cairo, Egypt..... CAPT J. J. Sapero (MC) USN, CO

Schools.

HCS, Bainbridge, Md.....LCDR L. K. Witcofski (MSC) USN, Ex.O
HCS, Portsmouth, Va..... LCDR B. F. Duwel (MSC) USN, Ex.O
NavMedSch, NNMC, Bethesda, Md..... CAPT J. L. Enyart (MC) USN, CO
CAPT E. B. Coyl (MC) Ex.O
NavSchHospAdm, NNMC, Bethesda, Md.. CDR M. E. Zimmerman (MSC) USN, CO
LCDR G. W. Weise (MSC) USN, Ex.O
SchAvMed, NAS, Pensacola, Fla.....CAPT L. D. Carson (MC) USN, CO
HCS, Great Lakes, Ill.....LCDR M. Keizur, Jr. (MSC) USN, Ex.O
HCS, San Diego, Calif.....CDR F. O. Huntsinger (MSC) USN, Ex. O

Hospital Ships.

Officer in Command of Naval Hospital in:

USS HAVEN (AH-12)..... CAPT G. F. Blodgett (MC) USN
USS CONSOLATION (AH-15)..... CAPT J. R. Sayers (MC) USN
USS REPOSE (AH-16)..... CAPT A. M. Ecklund (MC) USN

Naval Medical Materiel Offices.

Brooklyn, N. Y..... ..... CDR T. P. Connelly (MC) USN, CO
Oakland, Calif..... CDR C. J. Owen (MSC) USN, CO
LCDR C. V. Quigley (MSC) USN, Ex.O

Naval Dispensaries.

BuMed Nav Disp, Navy Dept.....CAPT L. C. Thyson (MC) USN, CO
NavDisp, San Francisco, Calif..... CAPT H. H. Carroll (MC) USN, CO

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Navy Medical School, National Naval Medical Center, Bethesda 14, Maryland, giving full name, rank, corps and old and new address.

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From the Note Book

1. The Armed Forces Medical Policy Council in the Office of the Secretary of Defense has noted with appreciation the praise given by Congressman Hebert to the Armed Services Medical Procurement Agency. Representative F. W. Hebert is chairman of the House Armed Services subcommittee. He and the subcommittee's counsel expressed belief that the medical agency, which in the last fiscal year made purchases totalling $228,000,000, might well serve as a model for other branches of the Armed Forces. The Council is vitally interested in the formulation of policies governing the development, procurement and distribution of medical supplies and equipment. Representatives of the three Surgeons General comprise the directorate of the joint procurement agency which won Mr. Hebert's approval. (A. F. Med. Policy Council, 5 March 1952)

2. Many of the Nation's foremost civilian scientists now working in the field of mechanical resuscitation joined medical scientists of the Armed Forces in a 2-day conference on the subject of mechanical resuscitators on 20-21 March 1952 at the Naval Medical Field Research Laboratory, Camp Lejeune, N. C. These scientists discussed the various phases of the work that have been carried out by civilian and military investigators over recent years, particularly that of the past year on the effects of the use of mechanical resuscitators. (PIO, BuMed)

3. Because of the death of Dr. Solomon C. Martin, Managing Editor and Publisher, the Urologic and Cutaneous Review was discontinued with publication of the February issue. (Announcement, Urol. & Cutan. Rev.)

4. Dr. S. E. Sulkin, Southwestern Medical School, Dallas, Texas, reports that rabies virus was recovered from the brain of a human case. The victim, a 9-year old boy, first developed symptoms on 5 January, approximately 5 months after exposure to a rabid dog. Death occurred 13 days after onset of symptoms. (FSA, PHS, National Office of Vital Statistics, 20 March 1952)

5. A joint meeting of all orthopedic associations of the English-speaking world will be held in London from 29 June to 4 July 1952. This is the first time in history that all orthopedic surgeons of the English-speaking world have planned to hold their annual meetings at the same moment, and to meet in London. (J. Bone & Joint Surg. (Brit. volume), Feb. 1952, Editorial)

6. Pneumoarthrography of the knee is a relatively simple procedure which, when carefully performed, interpreted and correlated with clinical findings, will considerably increase accuracy in the diagnosis of internal derangements of the knee. (Surg., Gynec. & Obstet., March 1952, T. E. Keats, D. S. Staatz & R. W. Bailey)

7. Plastic safety lenses, half the weight of their glass counterparts, have been developed to withstand breakage and to protect industrial workers' eyes. They are resistant to splashing chemicals, welding sputter, emery wheel sparks

and the impact of hard, small, high-velocity particles. The "glasses" have high scratch-resistant qualities. (Science News Letter, 15 March 1952)

8. Plastic teeth are not all that could be desired insofar as tooth form, color, density, wear resistance and efficiency are concerned, but they do exhibit characteristics and physical properties which are a definite adjunct in creating more esthetic and efficient prosthetic replacements. (J. A. D. A., March 1952, L. C. Dirksen)

9. The Bureau of Mines, Department of Interior, has published a pamphlet, "Static Electricity in Hospital Operating Suites, Direct and Related Hazards and Pertinent Remedies," written by P. G. Guest, V. W. Sikora and B. Lewis. This information is very important. The pamphlet is being distributed by the Bureau to Naval Hospitals. Other activities desiring copies should contact "Bureau of Mines, Department of Interior, 4800 Farber Street, Pittsburg, Pa."

10. Air Transportation of Cardiac and Pulmonary Patients is discussed in Annals of Internal Medicine, Part 2, February 1952, by Lt. Col. V. M. Downey (MC), USAF and Col. B. A. Strickland, Jr. (MC) USAF.

11. A summary of investigations on enteric disease in the U. S. Navy was presented to the Commission on Enteric Infections of the Armed Forces Epidemiological Board on 22-23 March 1952 at New Orleans, La., by Cdr. L. A. Barnes (MSC) USN, NMRI, NNMC, Bethesda, Md.

12. A discussion of "Inhibition of Human Mammary and Prostatic Cancers by Adrenalectomy" appears in Cancer Research, February 1952, C. Huggins and D. M. Bergenstal.

13. The therapeutically obstinate complication of osteitis pubis has been found to respond favorably to the administration of ACTH. (J. Urol., March 1952, V. F. Marshall et al)

14. Basic theoretical principles, materials and technics in the cold wave process, clarifying the mechanisms through which reactions of medical or medico-legal importance may develop is discussed in A. M. A. Archives of Dermatology and Syphilology, March 1952, M. T. Brunner.

15. In the treatment of common and plane warts a reasonably high percentage of success was obtained with the use of liquid nitrogen. (Brit. J. Dermat., Feb. 1952, J. K. Morgan)

16. The construction of physiologic full dentures in keeping with mucosa cushion or lack of it and with predetermined provisions provided for denture setting in stratetic areas is discussed in Dental Items of Interest, March 1952, J. K. Lennox and M. B. Gillman.

BUMED CIRCULAR LETTER 52-22 11 March 1952

From: Chief, Bureau of Medicine and Surgery
To: ALL SHIPS AND STATIONS

Subj: Venereal disease; use of oral penicillin as additional prophylaxis for prevention of urethritis, acute, due to gonococcus

Ref: (a) BUMED Cir Ltr No. 50-36
(b) BUMED Cir Ltr No. 51-3
(c) Art. 23-145, Med-072, ManMedDept

1. References (a) and (b) and all studies established by separate correspondence under these references are hereby canceled. Reference (c) is also canceled.

2. One tablet of oral penicillin of 250,000 unit size has proved to be highly efficacious in the prevention of clinical cases of gonorrhea among Naval and Marine Corps personnel when the tablet is taken within a few hours following sexual exposure. This additional measure for the prevention of gonorrhea is highly recommended in the following authorized areas and any others of very high incidence:

European - Mediterranean - Middle East
Far East
Philippines
Caribbean - West Indies
Panama, Canal Zone
South America

These tablets are NOT authorized for use in stations of continental United States or in ships while in ports of the United States, or in areas of low incidence of gonorrhea.

3. Previously designated supervisory stocking points for oral penicillin tablets may be discontinued and any excess stocks of oral penicillin remaining after all possible local redistribution has been accomplished should be reported to the Bureau for disposition instructions.

4. Activities in authorized areas and vessels departing for such areas are authorized to submit separate Materiel Requisitions, NavMed Form 4, via the appropriate command, to the nearest medical supply depot for penicillin tablets, Armed Services Catalog of Medical Materiel Stock No. 1-606-799. Requirements should be based on four tablets per man per month in the area, until usage rates are available to compute future requirements. There is no restriction on the use of oral penicillin tablets for standard therapeutic purposes for which oral penicillin is commonly prescribed. Higher commands should guard against improper use and disposition of this valuable antibiotic, particularly in foreign areas.

5. Activities using oral penicillin shall maintain a strict record of all tablets received and issued. Tablets shall be administered for prophylaxis of gonorrhea only upon voluntary request to individuals admitting sexual exposure while on liberty. The drug shall be taken in the presence of the person issuing the drug and limited to one 250,000 unit size tablet following each liberty on which exposure occurred. Observations on the effect of the oral penicillin program should be continually made and reported. In particular, comments on any of the following should be forwarded via appropriate command to the Bureau of Medicine and Surgery, Attention Code 7213:

a. Any reactions believed to have resulted from use of penicillin. (Include entire history of oral or intramuscular use.)

b. Any cases of syphilis in which early signs were believed to be delayed or masked due to use of the drug. (Include complete case history, exposure, and prophylaxis habits.)

c. Failure of oral penicillin to protect against gonorrhea when taken within 12 hours following first exposure. (Include complete exposure and prophylaxis habits.)

d. Any misuse of the drug.

6. In areas where oral penicillin is utilized as a prophylaxis it is directed that the following be emphasized in the educational program:

a. That oral penicillin tablets are only effective in the prevention of gonorrhea and do not protect against syphilis and the other venereal diseases.

b. That mechanical prophylaxis (condom) should be used during each promiscuous exposure.

c. That soap and water cleansing and all other protective measures customarily used should be assiduously employed.

d. That once oral penicillin is used in an authorized area, the individual should request one following every exposed liberty. This is required in order to permit better evaluation of their effectiveness, which in respect to syphilis is still undetermined, and which may conceivably change with time in respect to gonorrhea.

e. The contents of the standard chemical prophylaxis tube (Stock No. 1-384-108 or 1-384-112) should be applied to the external sex parts and surrounding exposed areas only. The contents should not be used intra-urethrally.

H. L. Pugh

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BUMED CIRCULAR LETTER 52-23 12 March 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Handbook of the Hospital Corps

Ref: (a) BUMED CirLtr No. 51-37

1. Reference (a) is cancelled.

2. The new edition of the Handbook of the Hospital Corps, which reference (a) stated was in preparation, is now in advanced stages of editorial completion. However, completion of the editorial process and scheduled printing of the book by the Government Printing Office will require about 9 months before copies of the revised Handbook of the Hospital Corps will be available in the field.

3. Reference (a) stated that current orders for the Handbook will continue to be filled from the remaining stock of the 1939 edition, to be issued by hospitals and hospital corps schools on a custody basis only. The policy of issuing on a custody basis only shall be continued, and extended to all activities.

4. As a result of reference (a) several field activities have made available to the Bureau for redistribution some reserve stocks of the 1939 edition. Other activities with reserve stocks are likewise requested to inform the Bureau of surplus quantities available, requesting the Bureau for shipping instructions therefor.

5. The Bureau desires that stocks of the 1939 Handbook now on hand for distribution and those subsequently recovered from surplus in the various activities be made available to those activities most urgently requiring them. Therefore, activities having insufficient copies of the Handbook of the Hospital Corps for effective operation of the activity, are requested to submit by letter to the Bureau a statement of present needs for additional copies of the 1939 edition. The Bureau will make every effort to fill such requests within the limit of available copies of the Handbook.

H. L. Pugh

The above letter will be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 52-24 12 March 1952

From: Chief, Bureau of Medicine and Surgery
To: All Activities Under Management Control of the Bureau of Medicine and Surgery

Subj: Procedure for Preparation and Submission of Annual and Specific Work Request Programs for Fiscal Year 1953

Ref: (a) BuMed C/L No. 51-58
(b) BuMed C/L No. 51-119

Encl: (1) Schedule "A" - Annual Work Request Program, F. Y. 1953

1. Reference (a) is hereby cancelled and superseded by this letter. Enclosure (1) covers all instructions necessary for the preparation and submission of the Annual Work Request requirements for Fiscal Year 1953.

2. The Specific Work Request Program for Fiscal Year 1953 will not be included with the Annual Estimates of Expenditures, Fiscal Year 1953, but will be submitted separately by the activities concerned, under authority of this letter, to reach the Bureau not later than 15 May 1952. Projects considered under the Specific Work Request procedure will be prepared in accordance with the instructions outlined in reference (b). In considering work projects for inclusion under the Specific Work Request Program, care should be exercised to insure that description and justification for the proposed work be given in terms that are definite, specific, and certain. Work projects that involve new construction, extensions or alterations to existing buildings and structures should include as a part of the project plot plans or schematic drawings. Work projects received in the Bureau with inadequate description and/or justification will be returned for resubmission. It is further requested that the activity indicate in each station project involving extensions or alterations what effect this will have on, and how this will be integrated in, future plans or programs for expansion or development of the activity. If the project involves taking over space previously used for another purpose, it should be stated what provision is to be substituted for the latter.

3. Recently, the Chief of Naval Operations emphasized the absolute necessity to conserve construction man hours, materials, and transportation. To this end it was directed that no frills, adornments or decorative refinement, elaborate recreational facilities or other non-essentials be permitted to enter any plan or construction project. Projects requiring critical materials will be held to a minimum. All requests for work, both under the Annual and Specific Work Request Programs, are to be as economical as practicable and consistent with the requirements of the project.

H. L. Pugh

Circular Letter 52-24 will not be printed in the Navy Department Bulletin. Bulletin.

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BUMED CIRCULAR LETTER 52-25 14 March 1952

From: Chief, Bureau of Medicine and Surgery
To: Medical Department Activities and Facilities under Commander, U. S. Naval Forces, Far East

Subj: Clinical Records and X-rays in Far East; early retirement of

Ref: (a) Art 23-303(6)(d), items 617 and 629, ManMedDept
(b) Art 23-303(4), ManMedDept
(c) BUMED Cir Ltr 51-162, Register of Patients

1. Reference (a) directs that patient's jacket or clinical records and x-rays be transferred from the medical activity to Naval Records Management Center at Garden City 2 years from date of last admission.

2. Reference (b) states that any records listed on the Fields Records Retirement Schedule may, when inactive, be transferred to a naval records management center.

3. Many requests from the Veteran's Administration for the loan of clinical records and x-rays necessary for the adjudication of claims on Korean veterans are being delayed because of the length of time now required to obtain the records from the naval medical activities in the Far East.

4. Accordingly, all medical activities and facilities in the Far East are requested to transfer clinical records and x-rays in accordance with reference (a), within 2 months from date of discharge of patient rather than 2 years from date of last admission.

5. In accordance with reference (c), the relevant alphabetical section of the Register, giving name and register number, shall be reproduced (typed) and sent as a finding medium for use at the Record Center.

H. L. Pugh

The above letter will not be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 52-26 14 March 1952

From: Chief, Bureau of Medicine and Surgery
To: All Continental Shore Stations

Subj: NavMed Form H-8 (Medical History) and NavMed Form H-4 (Dental Record) in the case of Naval and Marine Corps Reservists upon release from active duty, disposition of

Ref: (a) Art 16-8, ManMedDept
(b) Art 16-22, ManMedDept

1. It is directed that all NavMed Forms H-8 (Medical Histories) and NavMed Forms H-4 (Dental Records) be removed from the Health Records of subject members upon their release from extended active duty and that the forms be forwarded immediately to the Bureau, stapled to the Standard Form 88 (Report of Medical Examination) which is completed at the time of separation. Additionally, District Medical Officers and the Directors of Marine Corps Reserve Districts are directed to review the Health Records of all Reserve personnel within their jurisdiction and forward to this Bureau, as soon as possible, such of the above forms as have thus far been retained therein.

2. The foregoing is intended to obviate delay which has occasionally resulted in the adjudication of claims by the Veterans Administration in the cases of some Naval and Marine Corps Reserve members who have executed claims for Veterans Administration benefits upon release from active duty and in whose cases the delay has been attributed to a lack of current medical data being available in the medical record files of the Bureau.

3. It is being recommended that references (a) and (b) be modified accordingly.

H. L. Pugh

The above letter will not be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 52-27 14 March 1952

From: Chief, Bureau of Medicine and Surgery
To: All Medical Department Activities and Facilities

Subj: BUMED Circular Letter No. 51-100; Requisitioning, receipt procedures, stock levels, emergency expansion reserves and priority indicators for medical and dental stores; modification

Ref: (a) BUMED Cir Ltr No. 51-100

1. Reference (a) is modified as follows:

a. In basic letter, change title of enclosure (5) to read as follows:

"Procedures for Receipt of Medical and Dental Supplies and Equipment Direct from Contractor When Charged Through Medical Stores Account (Expenditure Account 58000)."

b. Enclosure (2), paragraph 11. -- Delete the second sentence and substitute the following:

"These instructions shall not be confused with instructions contained in enclosure (5) which outlines the procedures to be followed for the receipt of medical stores procured under, and cleared through the Medical Stores Account (Expenditure Account 58000) and ultimately invoiced on NAVMED-255 by a medical supply depot."

c. Enclosure (5). -- Change title to read as follows:

"PROCEDURES FOR RECEIPT OF MEDICAL AND DENTAL SUPPLIES AND EQUIPMENT DIRECT FROM CONTRACTOR WHEN CHARGED THROUGH MEDICAL STORES ACCOUNT (EXPENDITURE ACCOUNT 58000)."

H. L. Pugh

The above letter will not be printed in the Navy Department Bulletin.

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NAVY DEPARTMENT
BUREAU OF MEDICINE AND SURGERY
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

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NavMed-369 · 3/52

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